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SEQUENCE LISTING

<110> Dahl, Niklas

<120> Genes Associated with Obesity and Methods for Using the Same

<130> ASZD-P01-852

<150> GB 0306185
<151> 2003-03-19

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<170> PatentIn version 3.2

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         35                  40                  45

Ser Tyr Ser Ser Thr Ser Arg Asp Asp Asp Phe Phe His Glu Leu Pro
     50                  55                  60

Glu Thr Phe Pro Ser Asp Pro Pro Glu Pro Leu Pro His Phe Leu Ile
 65                  70                  75                  80

Glu Pro Glu Glu Ala Tyr Ile Val Lys Asn Lys Pro Val Asn Leu Tyr
                 85                  90                  95

Cys Lys Ala Ser Pro Ala Thr Gln Ile Tyr Phe Lys Cys Asn Ser Glu
            100                 105                 110

Trp Val His Gln Lys Asp His Ile Val Asp Glu Arg Val Asp Glu Thr
            115                 120                 125

Ser Gly Leu Ile Val Arg Glu Val Ser Ile Glu Ile Ser Arg Gln Gln
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Val Glu Glu Leu Phe Gly Pro Glu Asp Tyr Trp Cys Gln Cys Val Ala
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Trp Ser Ser Ala Gly Thr Thr Lys Ser Arg Lys Ala Tyr Val Arg Ile
                165                 170                 175

Ala Tyr Leu Arg Lys Thr Phe Glu Gln Glu Pro Leu Gly Lys Glu Val
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Ser Leu Glu Gln Glu Val Leu Leu Gln Cys Arg Pro Pro Glu Gly Ile
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Lys Gln Ala Arg Leu Ser Asp Thr Ala Asn Tyr Thr Cys Val Ala Lys
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Asn Ile Val Ala Lys Arg Lys Ser Thr Thr Ala Thr Val Ile Val Tyr
            260   265   270

Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys Asn Ser
            275   280   285

Arg Cys Gly Arg Gly Tyr Gln Lys Arg Thr Arg Thr Cys Thr Asn Pro
    290   295   300

Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Ser Val Gln Lys
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Ile Ala Cys Thr Thr Leu Cys Pro Val Asp Gly Arg Trp Thr Pro Trp
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Ser Lys Trp Ser Thr Cys Gly Thr Glu Cys Thr His Trp Arg Arg Arg
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Glu Cys Thr Ala Pro Ala Pro Lys Asn Gly Gly Lys Asp Cys Asp Gly
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Gln Thr Gly Gly Gln Leu Leu Glu Glu Pro Lys Ala Leu His Phe Lys
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His Asp Trp Arg Met Leu Ala His Lys Leu Asn Leu Asp Arg Tyr Leu
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Asn Tyr Phe Ala Thr Lys Ser Ser Pro Thr Gly Val Ile Leu Asp Leu
        915             920             925

Trp Glu Ala Gln Asn Phe Pro Asp Gly Asn Leu Ser Met Leu Ala Ala
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Gln Glu Ser Ala Arg Lys Ser Glu Pro Pro Ala Pro Val Arg Arg Gln
            35                  40                  45

Ser Tyr Ser Ser Thr Ser Arg Asp Asp Asp Phe Phe His Glu Leu Pro
        50                  55                  60

Glu Thr Phe Pro Ser Asp Pro Pro Glu Pro Leu Pro His Phe Leu Ile
65                  70                  75                  80

Glu Pro Glu Glu Ala Tyr Ile Val Lys Asn Lys Pro Val Asn Leu Tyr
                85                  90                  95

Cys Lys Ala Ser Pro Ala Thr Gln Ile Tyr Phe Lys Cys Asn Ser Glu
            100                 105                 110

Trp Val His Gln Lys Asp His Ile Val Asp Glu Arg Val Asp Glu Thr
            115                 120                 125

Ser Gly Leu Ile Val Arg Glu Val Ser Ile Glu Ile Ser Arg Gln Gln
        130                 135                 140

Val Glu Glu Leu Phe Gly Pro Glu Asp Tyr Trp Cys Gln Cys Val Ala
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Trp Ser Ser Ala Gly Thr Thr Lys Ser Arg Lys Ala Tyr Val Arg Ile
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Ala Tyr Leu Arg Lys Thr Phe Glu Gln Glu Pro Leu Gly Lys Glu Val
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Ser Leu Glu Gln Glu Val Leu Leu Gln Cys Arg Pro Pro Glu Gly Ile
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Pro Val Ala Glu Val Glu Trp Leu Lys Asn Glu Asp Ile Ile Asp Pro
    210             215             220

Val Glu Asp Arg Asn Phe Tyr Ile Thr Ile Asp His Asn Leu Ile Ile
225             230             235             240

Lys Gln Ala Arg Leu Ser Asp Thr Ala Asn Tyr Thr Cys Val Ala Lys
            245             250             255

Asn Ile Val Ala Lys Arg Lys Ser Thr Thr Ala Thr Val Ile Val Tyr
            260             265             270

Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys Asn Ser
            275             280             285

Arg Cys Gly Arg Gly Tyr Gln Lys Arg Thr Arg Thr Cys Thr Asn Pro
    290             295             300

Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Ser Val Gln Lys
305             310             315             320

Ile Ala Cys Thr Thr Leu Cys Pro Val Asp Gly Arg Trp Thr Pro Trp
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Ser Lys Trp Ser Thr Cys Gly Thr Glu Cys Thr His Trp Arg Arg Arg
            340             345             350

Glu Cys Thr Ala Pro Ala Pro Lys Asn Gly Gly Lys Asp Cys Asp Gly
            355             360             365

Leu Val Leu Gln Ser Lys Asn Cys Thr Asp Gly Leu Cys Met Gln Ser
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Phe Ile Tyr Pro Ile Ser Thr Glu Gln Arg Thr Gln Asn Glu Tyr Gly
385             390             395             400

Phe Ser Ser Ala Pro Asp Ser Asp Asp Val Ala Leu Tyr Val Gly Ile
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Val Ile Ala Val Ile Val Cys Leu Ala Ile Ser Val Val Val Ala Leu
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Phe Val Tyr Arg Lys Asn His Arg Asp Phe Glu Ser Asp Ile Ile Asp
            435             440             445

Ser Ser Ala Leu Asn Gly Gly Phe Gln Pro Val Asn Ile Lys Ala Ala
    450             455             460

Arg Gln Asp Leu Leu Ala Val Pro Pro Asp Leu Thr Ser Ala Ala Ala
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Met Tyr Arg Gly Pro Val Tyr Ala Leu His Asp Val Ser Asp Lys Ile
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Pro Gln Gly Arg Val Tyr Glu Met Tyr Val Thr Val His Arg Lys Glu
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Thr Met Arg Pro Pro Met Asp Asp Ser Gln Thr Leu Leu Thr Pro Val
    610             615             620

Val Ser Cys Gly Pro Pro Gly Ala Leu Leu Thr Arg Pro Val Val Leu
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                20                  25                  30

Gln Glu Ser Ala Arg Lys Ser Glu Pro Pro Ala Pro Val Arg Arg Gln
         35                  40                  45

Ser Tyr Ser Ser Thr Ser Arg Gly Ile Ser Val Thr Lys Lys Thr His
     50                  55                  60

Thr Ser Gln Ile Glu Ile Ile Pro Cys Lys Ile Cys Gly Asp Lys Ser
 65                  70                  75                  80

Ser Gly Ile His Tyr Gly Val Ile Thr Cys Glu Gly Cys Lys Gly Phe
                85                  90                  95

Phe Arg Arg Ser Gln Gln Ser Asn Ala Thr Tyr Ser Cys Pro Arg Gln
            100                 105                 110

Lys Asn Cys Leu Ile Asp Arg Thr Ser Arg Asn Arg Cys Gln His Cys
            115                 120                 125

Arg Leu Gln Lys Cys Leu Ala Val Gly Met Ser Arg Asp Ala Val Lys
        130                 135                 140

Phe Gly Arg Met Ser Lys Lys Gln Arg Asp Ser Leu Tyr Ala Glu Val
145                 150                 155                 160

Gln Lys His Arg Met Gln Gln Gln Arg Asp His Gln Gln Gln Pro
                165                 170                 175

Gly Glu Ala Glu Pro Leu Thr Pro Thr Tyr Asn Ile Ser Ala Asn Gly
            180                 185                 190

Leu Thr Glu Leu His Asp Asp Leu Ser Asn Tyr Ile Asp Gly His Thr
        195                 200                 205
```

Pro Glu Gly Ser Lys Ala Asp Ser Ala Val Ser Ser Phe Tyr Leu Asp
    210   215   220

Ile Gln Pro Ser Pro Asp Gln Ser Gly Leu Asp Ile Asn Gly Ile Lys
225   230   235   240

Pro Glu Pro Ile Cys Asp Tyr Thr Pro Ala Ser Gly Phe Phe Pro Tyr
            245   250   255

Cys Ser Phe Thr Asn Gly Glu Thr Ser Pro Thr Val Ser Met Ala Glu
            260   265   270

Leu Glu His Leu Ala Gln Asn Ile Ser Lys Ser His Leu Glu Thr Cys
        275   280   285

Gln Tyr Leu Arg Glu Glu Leu Gln Gln Ile Thr Trp Gln Thr Phe Leu
    290   295   300

Gln Glu Glu Ile Glu Asn Tyr Gln Asn Lys Gln Arg Glu Val Met Trp
305   310   315   320

Gln Leu Cys Ala Ile Lys Ile Thr Glu Ala Ile Gln Tyr Val Val Glu
            325   330   335

Phe Ala Lys Arg Ile Asp Gly Phe Met Glu Leu Cys Gln Asn Asp Gln
            340   345   350

Ile Val Leu Leu Lys Ala Gly Ser Leu Glu Val Val Phe Ile Arg Met
            355   360   365

Cys Arg Ala Phe Asp Ser Gln Asn Asn Thr Val Tyr Phe Asp Gly Lys
    370   375   380

Tyr Ala Ser Pro Asp Val Phe Lys Ser Leu Gly Cys Glu Asp Phe Ile
385   390   395   400

Ser Phe Val Phe Glu Phe Gly Lys Ser Leu Cys Ser Met His Leu Thr
            405   410   415

Glu Asp Glu Ile Ala Leu Phe Ser Ala Phe Val Leu Met Ser Ala Asp
            420   425   430

Arg Ser Trp Leu Gln Glu Lys Val Lys Ile Glu Lys Leu Gln Gln Lys
            435   440   445

Ile Gln Leu Ala Leu Gln His Val Leu Gln Lys Asn His Arg Glu Asp
    450   455   460

Gly Ile Leu Thr Lys Leu Ile Cys Lys Val Ser Thr Leu Arg Ala Leu
465   470   475   480

Cys Gly Arg His Thr Glu Lys Leu Met Ala Phe Lys Ala Ile Tyr Pro
            485   490   495

Asp Ile Val Arg Leu His Phe Pro Pro Leu Tyr Lys Glu Leu Phe Thr
            500   505   510

Ser Glu Phe Glu Pro Ala Met Gln Ile Asp Gly
            515   520

<210> 7
<211> 1821
<212> DNA
<213> Homo sapiens

<400> 7
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<210> 8
<211> 477
<212> PRT
<213> Homo sapiens

<400> 8
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Thr His Thr Ser Gln Ile Glu Ile Ile Pro Cys Lys Ile Cys Gly Asp
                 20                  25                  30

Lys Ser Ser Gly Ile His Tyr Gly Val Ile Thr Cys Glu Gly Cys Lys
             35                  40                  45

Gly Phe Phe Arg Arg Ser Gln Gln Ser Asn Ala Thr Tyr Ser Cys Pro
     50                  55                  60
```

```
Arg Gln Lys Asn Cys Leu Ile Asp Arg Thr Ser Arg Asn Arg Cys Gln
65              70          75              80

His Cys Arg Leu Gln Lys Cys Leu Ala Val Gly Met Ser Arg Asp Ala
            85          90              95

Val Lys Phe Gly Arg Met Ser Lys Lys Gln Arg Asp Ser Leu Tyr Ala
        100         105         110

Glu Val Gln Lys His Arg Met Gln Gln Gln Gln Arg Asp His Gln Gln
        115         120         125

Gln Pro Gly Glu Ala Glu Pro Leu Thr Pro Thr Tyr Asn Ile Ser Ala
    130         135         140

Asn Gly Leu Thr Glu Leu His Asp Asp Leu Ser Asn Tyr Ile Asp Gly
145         150         155         160

His Thr Pro Glu Gly Ser Lys Ala Asp Ser Ala Val Ser Ser Phe Tyr
            165         170         175

Leu Asp Ile Gln Pro Ser Pro Asp Gln Ser Gly Leu Asp Ile Asn Gly
        180         185         190

Ile Lys Pro Glu Pro Ile Cys Asp Tyr Thr Pro Ala Ser Gly Phe Phe
        195         200         205

Pro Tyr Cys Ser Phe Thr Asn Gly Glu Thr Ser Pro Thr Val Ser Met
    210         215         220

Ala Glu Leu Glu His Leu Ala Gln Asn Ile Ser Lys Ser His Leu Glu
225         230         235         240

Thr Cys Gln Tyr Leu Arg Glu Glu Leu Gln Gln Ile Thr Trp Gln Thr
            245         250         255

Phe Leu Gln Glu Glu Ile Glu Asn Tyr Gln Asn Lys Gln Arg Glu Val
        260         265         270

Met Trp Gln Leu Cys Ala Ile Lys Ile Thr Glu Ala Ile Gln Tyr Val
    275         280         285

Val Glu Phe Ala Lys Arg Ile Asp Gly Phe Met Glu Leu Cys Gln Asn
    290         295         300

Asp Gln Ile Val Leu Leu Lys Ala Gly Ser Leu Glu Val Val Phe Ile
305         310         315         320

Arg Met Cys Arg Ala Phe Asp Ser Gln Asn Asn Thr Val Tyr Phe Asp
            325         330         335

Gly Lys Tyr Ala Ser Pro Asp Val Phe Lys Ser Leu Gly Cys Glu Asp
        340         345         350

Phe Ile Ser Phe Val Phe Glu Phe Gly Lys Ser Leu Cys Ser Met His
        355         360         365

Leu Thr Glu Asp Glu Ile Ala Leu Phe Ser Ala Phe Val Leu Met Ser
    370         375         380
```

```
Ala Asp Arg Ser Trp Leu Gln Glu Lys Val Lys Ile Glu Lys Leu Gln
385             390             395                 400

Gln Lys Ile Gln Leu Ala Leu Gln His Val Leu Gln Lys Asn His Arg
            405             410             415

Glu Asp Gly Ile Leu Thr Lys Leu Ile Cys Lys Val Ser Thr Leu Arg
            420             425             430

Ala Leu Cys Gly Arg His Thr Glu Lys Leu Met Ala Phe Lys Ala Ile
        435             440             445

Tyr Pro Asp Ile Val Arg Leu His Phe Pro Pro Leu Tyr Lys Glu Leu
    450             455             460

Phe Thr Ser Glu Phe Glu Pro Ala Met Gln Ile Asp Gly
465             470             475
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<211> 3646
<212> DNA
<213> Homo sapiens

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<210> 10
<211> 931
<212> PRT
<213> Homo sapiens

<400> 10

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Met Arg Lys Gly Leu Arg Ala Thr Ala Ala Arg Cys Gly Leu Gly Leu
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Gly Tyr Leu Leu Gln Met Leu Val Leu Pro Ala Leu Ala Leu Leu Ser
            20                  25                  30

Ala Ser Gly Thr Gly Ser Ala Ala Gln Asp Asp Asp Phe Phe His Glu
        35                  40                  45

Leu Pro Glu Thr Phe Pro Ser Asp Pro Glu Pro Leu Pro His Phe
    50                  55                  60

Leu Ile Glu Pro Glu Glu Ala Tyr Ile Val Lys Asn Lys Pro Val Asn
65                  70                  75                  80

Leu Tyr Cys Lys Ala Ser Pro Ala Thr Gln Ile Tyr Phe Lys Cys Asn
                85                  90                  95

Ser Glu Trp Val His Gln Lys Asp His Ile Val Asp Glu Arg Val Asp
            100                 105                 110

Glu Thr Ser Gly Leu Ile Val Arg Glu Val Ser Ile Glu Ile Ser Arg
        115                 120                 125
```

Gln Gln Val Glu Glu Leu Phe Gly Pro Glu Asp Tyr Trp Cys Gln Cys
    130   135   140

Val Ala Trp Ser Ser Ala Gly Thr Thr Lys Ser Arg Lys Ala Tyr Val
145   150   155   160

Arg Ile Ala Tyr Leu Arg Lys Thr Phe Glu Gln Glu Pro Leu Gly Lys
                165   170   175

Glu Val Ser Leu Glu Gln Glu Val Leu Leu Gln Cys Arg Pro Pro Glu
            180   185   190

Gly Ile Pro Val Ala Glu Val Glu Trp Leu Lys Asn Glu Asp Ile Ile
        195   200   205

Asp Pro Val Glu Asp Arg Asn Phe Tyr Ile Thr Ile Asp His Asn Leu
    210   215   220

Ile Ile Lys Gln Ala Arg Leu Ser Asp Thr Ala Asn Tyr Thr Cys Val
225   230   235   240

Ala Lys Asn Ile Val Ala Lys Arg Lys Ser Thr Thr Ala Thr Val Ile
            245   250   255

Val Tyr Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys
            260   265   270

Asn Ser Arg Cys Gly Arg Gly Tyr Gln Lys Arg Thr Arg Thr Cys Thr
    275   280   285

Asn Pro Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Ser Val
    290   295   300

Gln Lys Ile Ala Cys Thr Thr Leu Cys Pro Val Asp Gly Arg Trp Thr
305   310   315   320

Pro Trp Ser Lys Trp Ser Thr Cys Gly Thr Glu Cys Thr His Trp Arg
            325   330   335

Arg Arg Glu Cys Thr Ala Pro Ala Pro Lys Asn Gly Gly Lys Asp Cys
        340   345   350

Asp Gly Leu Val Leu Gln Ser Lys Asn Cys Thr Asp Gly Leu Cys Met
        355   360   365

Gln Thr Ala Pro Asp Ser Asp Asp Val Ala Leu Tyr Val Gly Ile Val
    370   375   380

Ile Ala Val Ile Val Cys Leu Ala Ile Ser Val Val Val Ala Leu Phe
385   390   395   400

Val Tyr Arg Lys Asn His Arg Asp Phe Glu Ser Asp Ile Ile Asp Ser
            405   410   415

Ser Ala Leu Asn Gly Gly Phe Gln Pro Val Asn Ile Lys Ala Ala Arg
            420   425   430

Gln Asp Leu Leu Ala Val Pro Pro Asp Leu Thr Ser Ala Ala Ala Met
    435   440   445

```
Tyr Arg Gly Pro Val Tyr Ala Leu His Asp Val Ser Asp Lys Ile Pro
    450             455             460

Met Thr Asn Ser Pro Ile Leu Asp Pro Leu Pro Asn Leu Lys Ile Lys
465             470             475             480

Val Tyr Asn Thr Ser Gly Ala Val Ser Pro Gln Asp Asp Leu Ser Glu
            485             490             495

Phe Thr Ser Lys Leu Ser Pro Gln Met Thr Gln Ser Leu Leu Glu Asn
            500             505             510

Glu Ala Leu Ser Leu Lys Asn Gln Ser Leu Ala Arg Gln Thr Asp Pro
        515             520             525

Ser Cys Thr Ala Phe Gly Ser Phe Asn Ser Leu Gly Gly His Leu Ile
    530             535             540

Val Pro Asn Ser Gly Val Ser Leu Leu Ile Pro Ala Gly Ala Ile Pro
545             550             555             560

Gln Gly Arg Val Tyr Glu Met Tyr Val Thr Val His Arg Lys Glu Thr
            565             570             575

Met Arg Pro Pro Met Asp Asp Ser Gln Thr Leu Leu Thr Pro Val Val
        580             585             590

Ser Cys Gly Pro Pro Gly Ala Leu Leu Thr Arg Pro Val Val Leu Thr
        595             600             605

Met His His Cys Ala Asp Pro Asn Thr Glu Asp Trp Lys Ile Leu Leu
    610             615             620

Lys Asn Gln Ala Ala Gln Gly Gln Trp Glu Asp Val Val Val Val Gly
625             630             635             640

Glu Glu Asn Phe Thr Thr Pro Cys Tyr Ile Lys Leu Asp Ala Glu Ala
            645             650             655

Cys His Ile Leu Thr Glu Asn Leu Ser Thr Tyr Ala Leu Val Gly His
            660             665             670

Ser Thr Thr Lys Ala Ala Ala Lys Arg Leu Lys Leu Ala Ile Phe Gly
            675             680             685

Pro Leu Cys Cys Ser Ser Leu Glu Tyr Ser Ile Arg Val Tyr Cys Leu
    690             695             700

Asp Asp Thr Gln Asp Ala Leu Lys Glu Ile Leu His Leu Glu Arg Gln
705             710             715             720

Thr Gly Gly Gln Leu Leu Glu Glu Pro Lys Ala Leu His Phe Lys Gly
            725             730             735

Ser Thr His Asn Leu Arg Leu Ser Ile His Asp Ile Ala His Ser Leu
            740             745             750

Trp Lys Ser Lys Leu Leu Ala Lys Tyr Gln Glu Ile Pro Phe Tyr His
        755             760             765
```

```
Val Trp Ser Gly Ser Gln Arg Asn Leu His Cys Thr Phe Thr Leu Glu
    770             775             780

Arg Phe Ser Leu Asn Thr Val Glu Leu Val Cys Lys Leu Cys Val Arg
785             790             795             800

Gln Val Glu Gly Glu Gly Gln Ile Phe Gln Leu Asn Cys Thr Val Ser
            805             810             815

Glu Glu Pro Thr Gly Ile Asp Leu Pro Leu Leu Asp Pro Ala Asn Thr
            820             825             830

Ile Thr Thr Val Thr Gly Pro Ser Ala Phe Ser Ile Pro Leu Pro Ile
        835             840             845

Arg Gln Lys Leu Cys Ser Ser Leu Asp Ala Pro Gln Thr Arg Gly His
    850             855             860

Asp Trp Arg Met Leu Ala His Lys Leu Asn Leu Asp Arg Tyr Leu Asn
865             870             875             880

Tyr Phe Ala Thr Lys Ser Ser Pro Thr Gly Val Ile Leu Asp Leu Trp
            885             890             895

Glu Ala Gln Asn Phe Pro Asp Gly Asn Leu Ser Met Leu Ala Ala Val
            900             905             910

Leu Glu Glu Met Gly Arg His Glu Thr Val Val Ser Leu Ala Ala Glu
        915             920             925

Gly Gln Tyr
    930
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<213> Homo sapiens

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Ala Ser Gly Thr Gly Ser Ala Ala Gln Asp Asp Asp Phe Phe His Glu
            35                  40                  45

Leu Pro Glu Thr Phe Pro Ser Asp Pro Pro Glu Pro Leu Pro His Phe
        50                  55                  60

Leu Ile Glu Pro Glu Glu Ala Tyr Ile Val Lys Asn Lys Pro Val Asn
 65                  70                  75                  80

Leu Tyr Cys Lys Ala Ser Pro Ala Thr Gln Ile Tyr Phe Lys Cys Asn
                85                  90                  95

Ser Glu Trp Val His Gln Lys Asp His Ile Val Asp Glu Arg Val Asp
            100                 105                 110

Glu Thr Ser Gly Leu Ile Val Arg Glu Val Ser Ile Glu Ile Ser Arg
        115                 120                 125

Gln Gln Val Glu Glu Leu Phe Gly Pro Glu Asp Tyr Trp Cys Gln Cys
        130                 135                 140

Val Ala Trp Ser Ser Ala Gly Thr Thr Lys Ser Arg Lys Ala Tyr Val
145                 150                 155                 160

Arg Ile Ala Tyr Leu Arg Lys Thr Phe Glu Gln Glu Pro Leu Gly Lys
                165                 170                 175

Glu Val Ser Leu Glu Gln Glu Val Leu Leu Gln Cys Arg Pro Pro Glu
            180                 185                 190

Gly Ile Pro Val Ala Glu Val Glu Trp Leu Lys Asn Glu Asp Ile Ile
            195                 200                 205

Asp Pro Val Glu Asp Arg Asn Phe Tyr Ile Thr Ile Asp His Asn Leu
        210                 215                 220

Ile Ile Lys Gln Ala Arg Leu Ser Asp Thr Ala Asn Tyr Thr Cys Val
225                 230                 235                 240

Ala Lys Asn Ile Val Ala Lys Arg Lys Ser Thr Thr Ala Thr Val Ile
                245                 250                 255

Val Tyr Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys
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Asn Pro Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Ser Val
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Gln Lys Ile Ala Cys Thr Thr Leu Cys Pro Val Asp Gly Arg Trp Thr
305   310   315   320

Pro Trp Ser Lys Trp Ser Thr Cys Gly Thr Glu Cys Thr His Trp Arg
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Arg Arg Glu Cys Thr Ala Pro Ala Pro Lys Asn Gly Gly Lys Asp Cys
        340   345   350

Asp Gly Leu Val Leu Gln Ser Lys Asn Cys Thr Asp Gly Leu Cys Met
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Gln Thr Ala Pro Asp Ser Asp Asp Val Ala Leu Tyr Val Gly Ile Val
    370   375   380

Ile Ala Val Ile Val Cys Leu Ala Ile Ser Val Val Val Ala Leu Phe
385   390   395   400

Val Tyr Arg Lys Asn His Arg Asp Phe Glu Ser Asp Ile Ile Asp Ser
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Ser Ala Leu Asn Gly Gly Phe Gln Pro Val Asn Ile Lys Ala Ala Arg
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Gln Asp Leu Leu Ala Val Pro Pro Asp Leu Thr Ser Ala Ala Ala Met
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Tyr Arg Gly Pro Val Tyr Ala Leu His Asp Val Ser Asp Lys Ile Pro
    450   455   460

Met Thr Asn Ser Pro Ile Leu Asp Pro Leu Pro Asn Leu Lys Ile Lys
465   470   475   480

Val Tyr Asn Thr Ser Gly Ala Val Thr Pro Gln Asp Asp Leu Ser Glu
            485   490   495

Phe Thr Ser Lys Leu Ser Pro Gln Met Thr Gln Ser Leu Leu Glu Asn
        500   505   510

Glu Ala Leu Ser Leu Lys Asn Gln Ser Leu Ala Arg Gln Thr Asp Pro
    515   520   525

Ser Cys Thr Ala Phe Gly Ser Phe Asn Ser Leu Gly Gly His Leu Ile
    530   535   540

Val Pro Asn Ser Gly Val Ser Leu Leu Ile Pro Ala Gly Ala Ile Pro
545   550   555   560

Gln Gly Arg Val Tyr Glu Met Tyr Val Thr Val His Arg Lys Glu Thr
            565   570   575

Met Arg Pro Pro Met Asp Asp Ser Gln Thr Leu Leu Thr Pro Val Val
    580   585   590

Ser Cys Gly Pro Pro Gly Ala Leu Leu Thr Arg Pro Val Val Leu Thr
    595   600   605

Met His His Cys Ala Asp Pro Asn Thr Glu Asp Trp Lys Ile Leu Leu
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Leu Ala Gly Val Gln His Pro Ser Leu Leu Ser Gly
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<210> 20
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<210> 33
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<400> 37
agtgcaccag taagcatgcc ttccaata                                    28


<210> 38
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<213> Artificial Sequence

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<400> 38
aagctggcaa ggagattctc aaaagtgg                                    28
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<210> 39
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<400> 39
accacatctg ctgaagttga ctggacct   28

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gaagctgcaa tcccatcctt gtctcttt   28

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<210> 46
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<220>
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<400> 46
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<210> 47
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<220>
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<400> 47
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<210> 48
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<220>
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<210> 49
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<220>
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<210> 50
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<220>
<223> Forward Primer C4P8F

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aggaaagagg ggtgctgtct   20

<210> 52
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<220>
<223> Reverse Primer C4P8R

<400> 52
atagcaggag agtgagggca   20

<210> 53
<211> 20
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<220>
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ggcccacttt ctggttcata   20

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<220>
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<400> 54
tcagccagac cagtgtgaaa   20

<210> 55
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<220>
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ggtctctgcc ctctgtcaag   20

<210> 56
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<220>
<223> Reverse Primer C15P1R

<400> 56
aggcttccca cacagatgag   20

<210> 57
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<220>
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cactcttggc acccttaacc   20

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<220>
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<210> 60
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<220>
<223> Reverse Primer C15P5R

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<210> 61
<211> 20
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<220>
<223> Forward Primer C15P6F

<400> 61
cccaaacatt ccaacttcgt                                          20


<210> 62
<211> 20
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<220>
<223> Reverse Primer C15P6R

<400> 62
tagctcaagc ctgaacccat                                          20


<210> 63
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<212> DNA
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<220>
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<400> 63
accctaatgc ccatttttgg ttgagg                                   26
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<210> 64
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<220>
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<210> 65
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cgacagaacc atccaaacca agacactt   28

<210> 66
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<220>
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<400> 66
gtgtttattg tgtcacgtgc agttgctg   28

<210> 67
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<220>
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<400> 67
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<210> 68
<211> 20
<212> DNA
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<220>
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<400> 68
atttcccctt ccagcatggt   20

<210> 69
<211> 27
<212> DNA
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<220>
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<400> 69
ccatcctaat acgactcact atagggc   27

<210> 70
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<220>
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<400> 70
ctccacagat cttgcatgga at   22

<210> 71
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<212> DNA
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<400> 71
actcactata gggctcgagc ggc   23

<210> 72
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<400> 72
tctgtgtttc atacccagga ggt   23

<210> 73
<211> 23
<212> DNA
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<220>
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<400> 73
agaacacaca cccatagact gca   23

<210> 74
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<212> DNA
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<220>
<223> Forward Primer

<400> 74
cctgtaccgc atttggcag   19

<210> 75
<211> 20
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<220>
<223> Reverse Primer

<400> 75
tgcaaaccag ctccactgtg   20